

-27-

## CLAIMS

1. A method of forming a protective layer, comprising the steps of:

5       applying liquid material to an object from a sprayer mechanism (42) of a coating device; and

      drying said liquid material to form a peelable protective layer,

      wherein said sprayer mechanism (42) sprays said liquid  
10       material such that said liquid material is distributed locally at a position close to an edge of said object, and distributed widely at a position away from said edge of said object.

15       2. A coating method according to claim 1, wherein said coating device is a robot (16a), said sprayer mechanism (42) is attached to an arm of said robot (16a), and said object is a vehicle body (14).

20       3. A coating method according to claim 1, wherein said sprayer mechanism (42) comprises a plurality of sprayer mechanisms, and said coating device comprises a plurality of coating devices corresponding to said sprayer mechanisms, said coating devices are robots (16a-16d), said  
25       sprayer mechanisms are attached to corresponding arms (40) of said robots (16a-16d), and said object is a vehicle body (14).

-28-

4. A coating method according to claim 1, wherein  
said sprayer mechanism (42) comprises a first sprayer (44a)  
and a second sprayer (44b) which are placed in parallel on  
an arm of said coating device, said method comprising the  
5 step of moving said first sprayer (44a) close to said edge  
and moving said second sprayer (44b) away from said edge,  
and

when said liquid material is sprayed from said first  
sprayer (44a) and said second sprayer (44b) towards said  
10 object, said liquid material is distributed locally from  
said first sprayer (44a), and said liquid material is  
distributed widely from said second sprayer (44b).

5. A coating method according to claim 4, wherein  
15 said sprayer mechanism (42) further comprises at least  
one middle sprayer (44c, 44d, 44e) between said first  
sprayer (44a) and said second sprayer (44b), and

said liquid material from said middle sprayer (44c,  
44d, 44e) is distributed widely in comparison with said  
20 liquid material from said first sprayer (44a), and  
distributed locally in comparison with said liquid material  
from said second sprayer (44b).

6. A coating method according to claim 5, wherein  
25 intervals between adjacent ones of said first sprayer  
(44a), middle sprayer (44c, 44d, 44e) and said second  
sprayer (44b) are large at positions close to said second

-29-

sprayer (44b) and small at positions close to said first sprayer (44a).

7. A coating method according to claim 4, wherein  
5 spray pressure of said liquid material from said first sprayer (44a) is smaller than that of said second sprayer (44b).

8. A coating method according to claim 5, wherein  
10 spray pressure of said liquid material from said at least one middle sprayer (44c, 44d, 44e) is larger than that of said first sprayer (44a) and smaller than that of said second sprayer (44b).

15 9. A coating method according to claim 5, wherein said sprayer mechanism comprises multiple middle sprayers between said first sprayer (44a) and said second sprayer (44b), and  
spray pressure of said liquid material from at least  
20 one of said middle sprayers (44c, 44d, 44e) is larger than that of said first sprayer (44a) and smaller than that of said second sprayer (44b).

10. A coating method according to claim 1, wherein  
25 said liquid material comprises acrylic copolymer as a main component.

-30-

11. A coating system comprising:

a coating device provided close to a transport line  
(12) for an object to be coated,

5 a sprayer mechanism (42) provided on said coating  
device,

a supply mechanism which supplies liquid material to  
said sprayer mechanism (42) to form a peelable protective  
layer on said object after drying said object, and  
a controller (18) which controls said sprayer mechanism (42)  
10 of said coating device such that said liquid material is  
distributed locally at a position close to an edge of said  
object, and distributed widely at a position away from said  
edge of said object.

15 12. A coating system according to claim 11, wherein  
said coating device is a robot and said sprayer  
mechanism (42) is mounted on an arm of said robot (16a-16d),  
and applies said liquid material to a vehicle body (14) as  
said object.

20 13. A coating system as in claim 11, wherein  
said sprayer mechanism comprises a plurality of sprayer  
mechanisms (42), and said coating device comprises a  
plurality of coating devices corresponding to said sprayer  
25 mechanisms, said coating devices are robots (16a-16d), said  
sprayer mechanisms are attached to corresponding arms of  
said robots (16a-16d), and said object is a vehicle body

-31-

(14).

14. A coating system according to claim 11 wherein  
said sprayer mechanism comprises a first sprayer (44a)  
5 and a second sprayer (44b) which are positioned in parallel  
on an arm (40), and

when said first sprayer (44a) is close to said edge,  
while said second sprayer (44b) is away from said edge, said  
controller (18) controls said sprayer mechanism (42) such  
10 that said liquid material is distributed locally from said  
first sprayer (44a), and said liquid material is distributed  
widely from said second sprayer (44b).

15 15. A coating system according to claim 14, wherein  
said sprayer mechanism (42) further comprises at least  
one middle sprayer (44c, 44d, 44e) positioned between said  
first sprayer (44a) and said second sprayer (44b), and  
said controller (18) controls said sprayer mechanism  
(42) such that said liquid material from said middle sprayer  
20 (44c, 44d, 44e) is distributed widely in comparison with  
said liquid material from said first sprayer (44a), and  
distributed locally in comparison with said liquid material  
from said second sprayer (44b).

25 16. A coating system according to claim 15, wherein  
said sprayer mechanism (42) further comprises multiple  
middle sprayers (44c, 44d, 44e), and

-32-

intervals between adjacent ones of said middle sprayers (44c, 44d, 44e) are large at positions close to said second sprayer (44b), intervals between adjacent ones of said middle sprayers (44c, 44d, 44e) are small at positions close  
5 to said first sprayer (44a).

17. A coating system according to claim 11, wherein said controller (18) controls said sprayer mechanism (42) such that spray pressure of said liquid material from  
10 said first sprayer (44a) is smaller than that of said second sprayer (44b).

18. A coating system according to claim 15, wherein spray pressure of said liquid material from said at  
15 least one middle sprayer is larger than that of said first sprayer (44a) and smaller than that of said second sprayer (44b).

19. A coating system according to claim 15, wherein  
20 said sprayer mechanism comprises multiple middle sprayers (44c, 44d, 44e) between said first sprayer (44a) and said second sprayer (44b), and

spray pressure of said liquid material from at least one of said middle sprayers (44c, 44d, 44e) is larger than  
25 that of said first sprayer (44a) and smaller than that of said second sprayer (44b).

-33-

20. A coating system according to claim 11, wherein  
said sprayer mechanism (42) sprays said liquid material  
without accompanying air.